

FIG. 1  
(PRIOR ART)

50 Figs

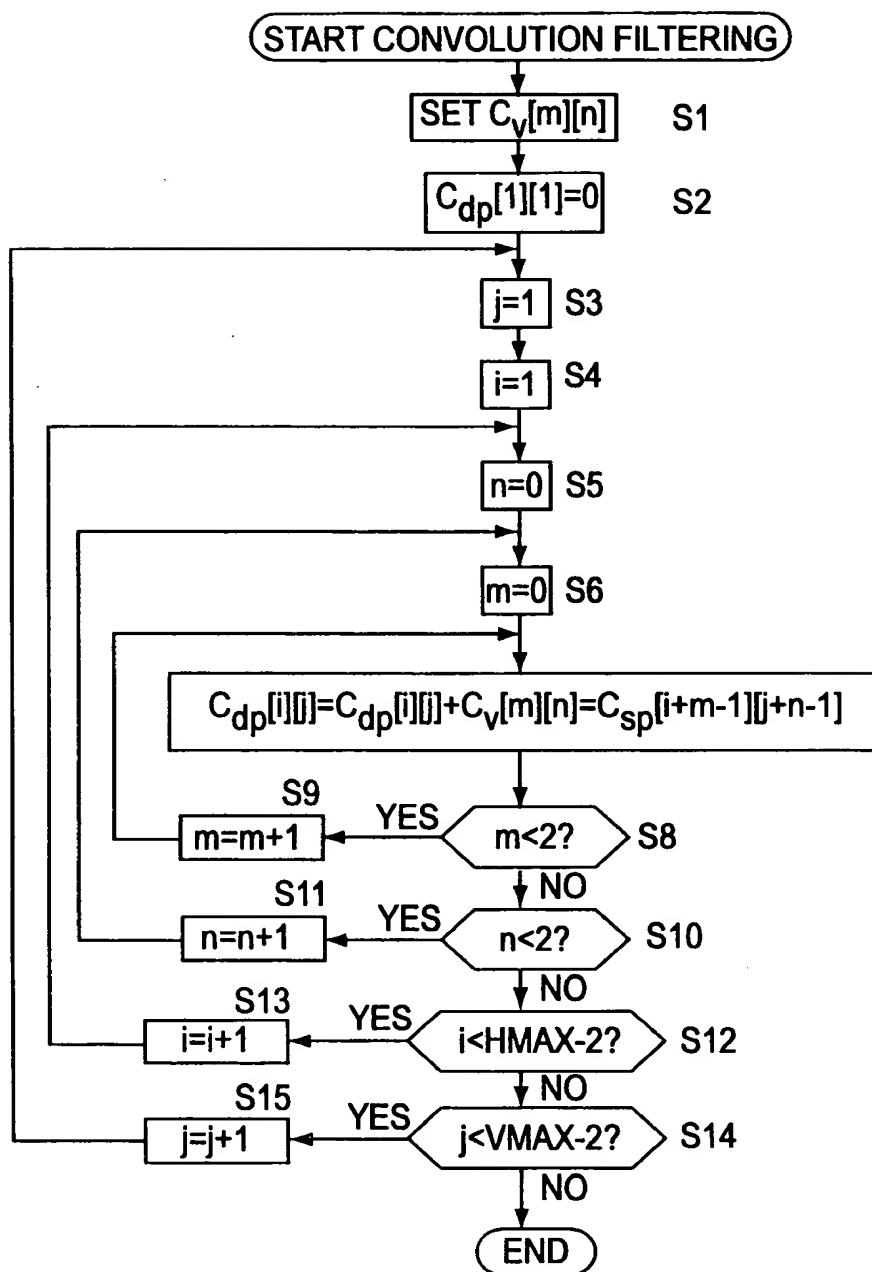


FIG. 2  
(PRIOR ART)

$C_{sp}$

$i$

	0	1	2	3	4	HMAX-1
0						
1						
2						
3						
4						
VMAX-1						

$j$

**FIG. 3**  
(PRIOR ART)

$C_v$

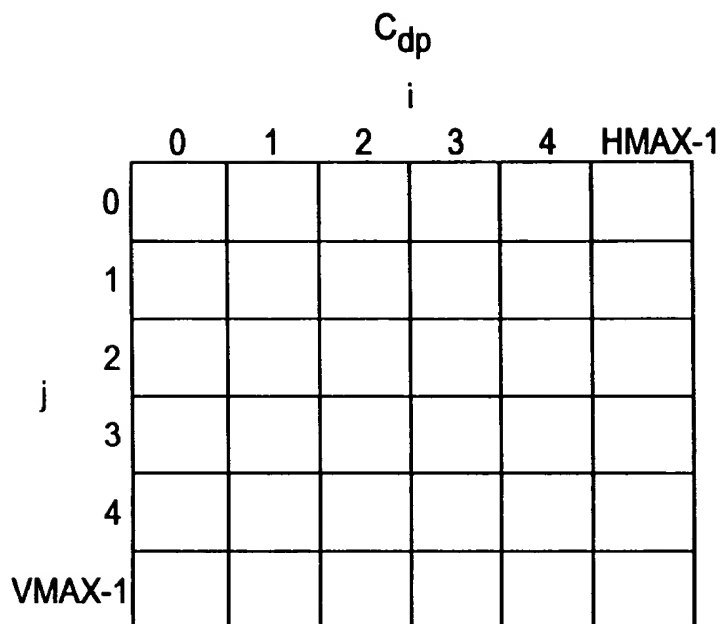
$m$

	0	1	2
0			
1			
2			

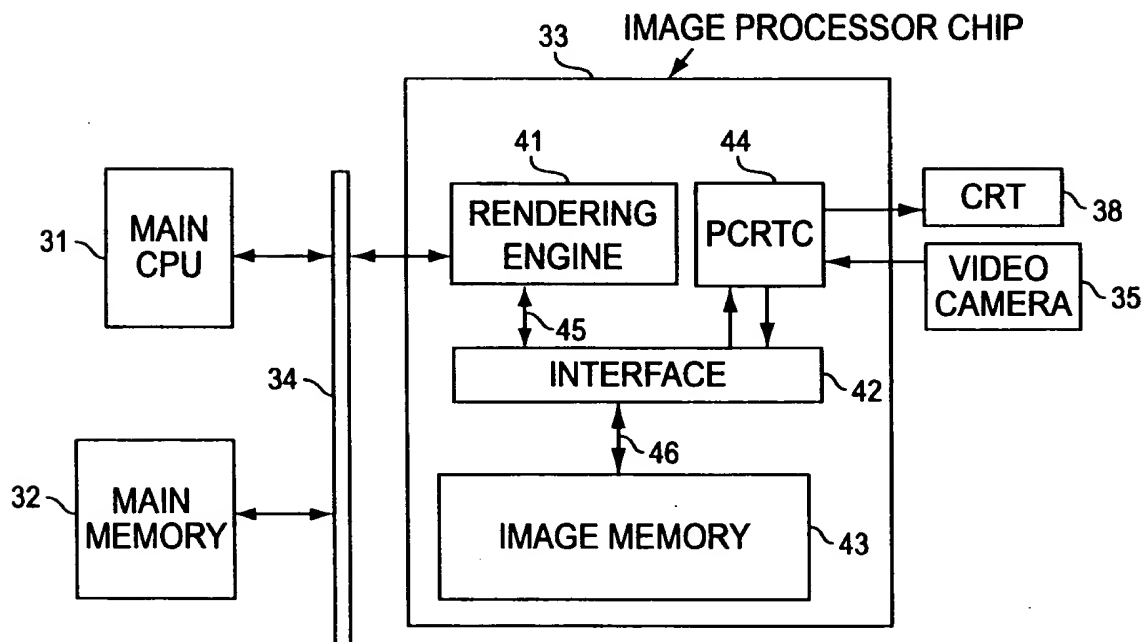
$n$

**FIG. 4**  
(PRIOR ART)

00345713 000000



**FIG. 5**  
(PRIOR ART)



**FIG. 6**

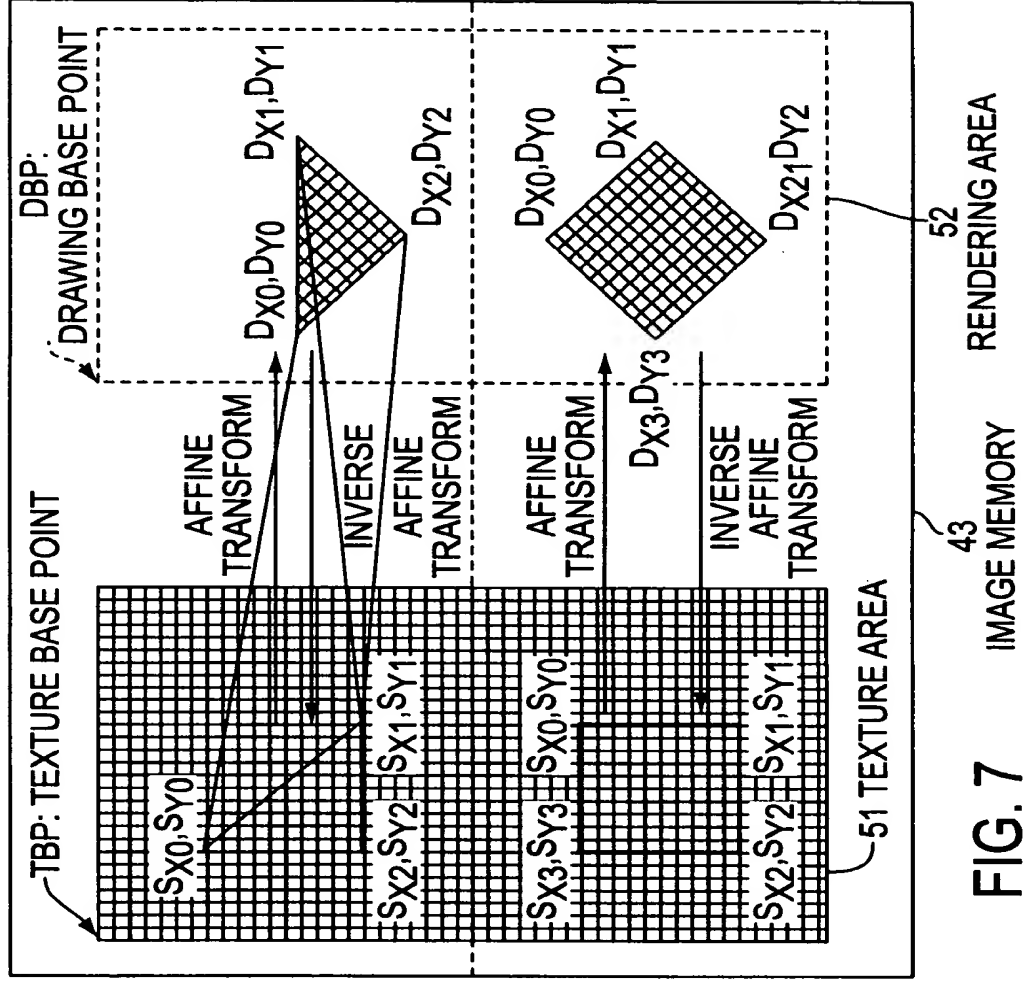


FIG. 7

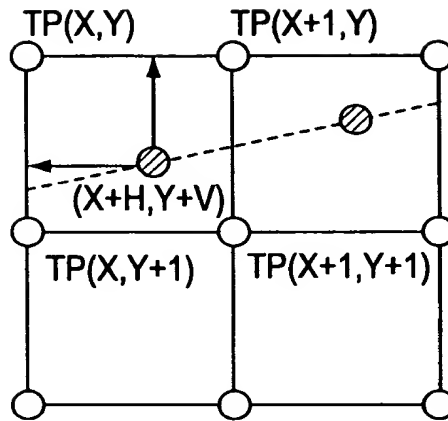


FIG. 8

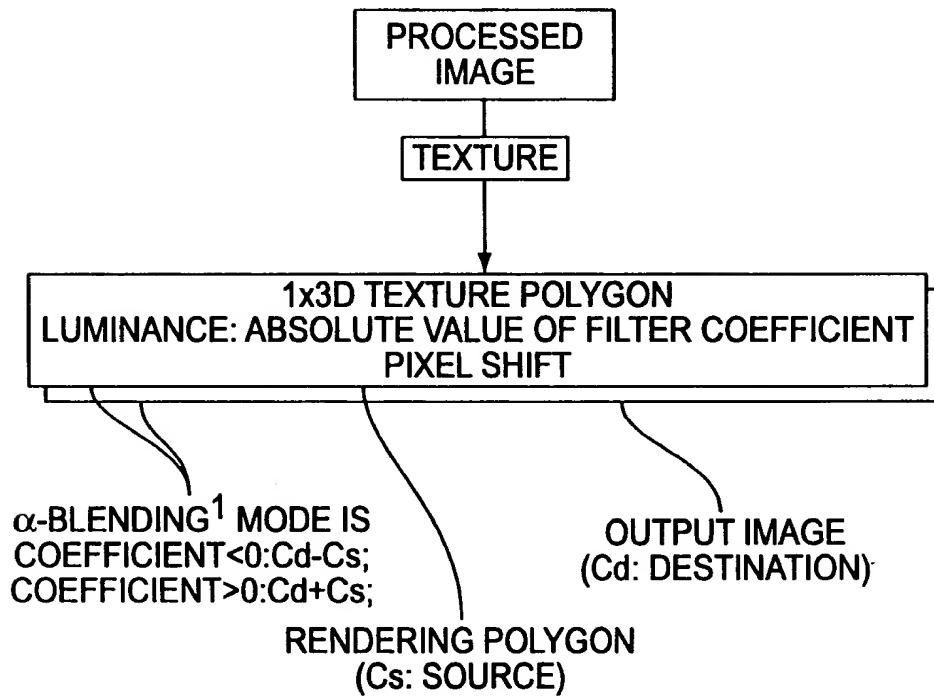


FIG. 9

		$C_{sp}$					
		0	1	2	3	4	5 (HMAX-1)
j	0						
	1						
	2						
	3						
	4						
	5 (VMAX-1)						

FIG. 10

		m		
		0	1	2
n	0	$C_{00}$ (1,1)	$C_{01}$ (0,1)	$C_{02}$ (-1,1)
	1	$C_{10}$ (1,0)	$C_{11}$ (0,0)	$C_{12}$ (-1,0)
	2	$C_{20}$ (1,-1)	$C_{21}$ (0,-1)	$C_{22}$ (-1,-1)

CONVOLUTION FILTER COEFFICIENT

FIG. 11



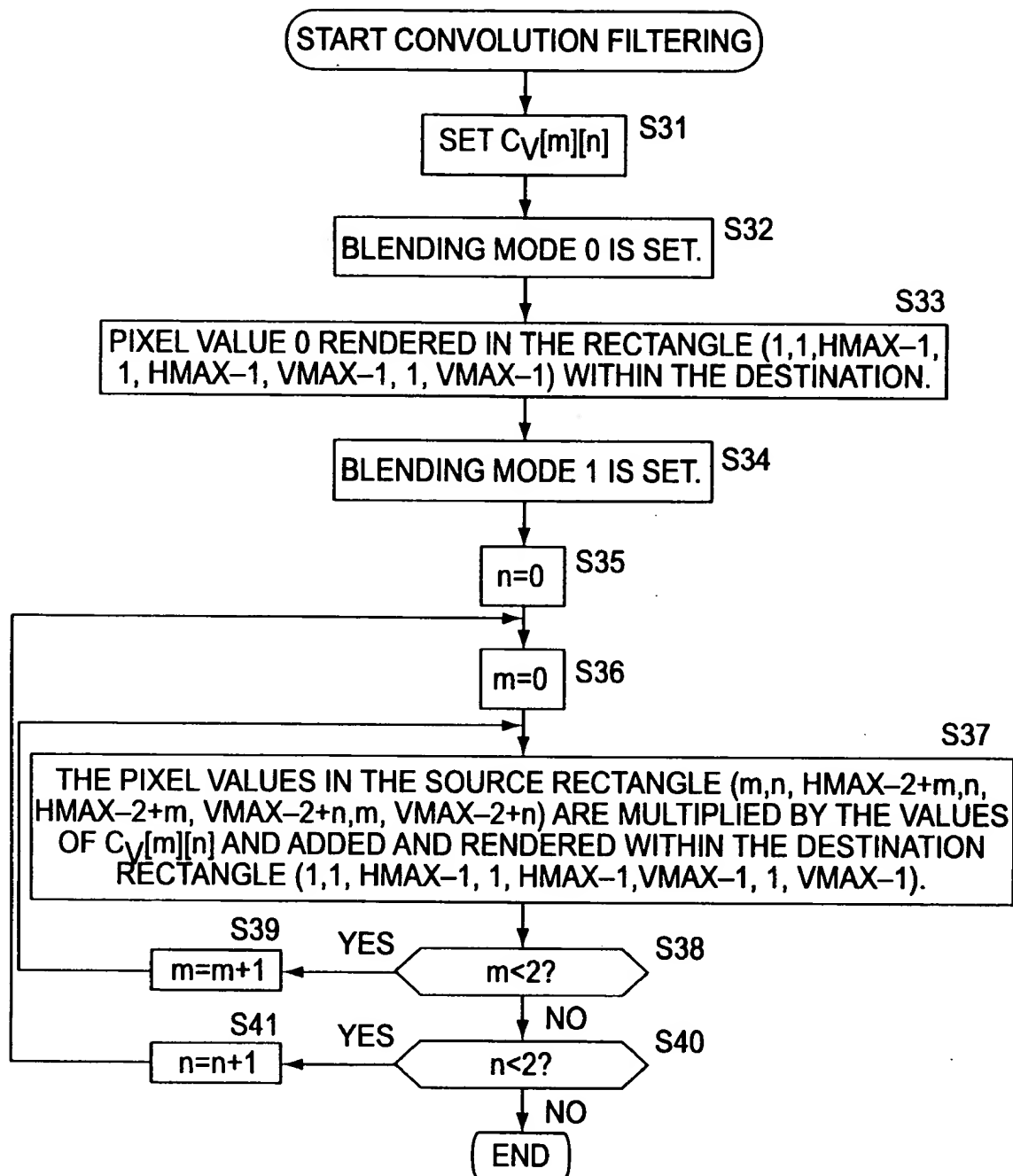


FIG. 12

		$C_{dp}$					
		0	1	2	3	4	5 (HMAX-1)
j	0						
	1		0	0	0	0	0
	2		0	0	0	0	0
	3		0	0	0	0	0
	4		0	0	0	0	0
	5 (VMAX-1)		0	0	0	0	0

FIG. 13

FIG. 14

		$C_{dp}$					
		0	1	2	3	4	5 (HMAX-1)
j	0						
	1		$C_{sp00}XC_{00}$	$C_{sp10}XC_{00}$	$C_{sp20}XC_{00}$	$C_{sp30}XC_{00}$	$C_{sp40}XC_{00}$
	2		$C_{sp01}XC_{00}$	$C_{sp11}XC_{00}$	$C_{sp21}XC_{00}$	$C_{sp31}XC_{00}$	$C_{sp41}XC_{00}$
	3		$C_{sp02}XC_{00}$	$C_{sp12}XC_{00}$	$C_{sp22}XC_{00}$	$C_{sp32}XC_{00}$	$C_{sp42}XC_{00}$
	4		$C_{sp03}XC_{00}$	$C_{sp13}XC_{00}$	$C_{sp23}XC_{00}$	$C_{sp33}XC_{00}$	$C_{sp43}XC_{00}$
	5 (VMAX-1)		$C_{sp04}XC_{00}$	$C_{sp14}XC_{00}$	$C_{sp24}XC_{00}$	$C_{sp34}XC_{00}$	$C_{sp44}XC_{00}$

FIG. 14

		$C_{dp}$					
		0	1	2	3	4	5 (HMAX-1)
j	0						
	1		$C_{sp00}XC_{00}$ $+C_{sp10}XC_{10}$	$C_{sp10}XC_{00}$ $+C_{sp20}XC_{10}$	$C_{sp20}XC_{00}$ $+C_{sp30}XC_{10}$	$C_{sp30}XC_{00}$ $+C_{sp40}XC_{10}$	$C_{sp40}XC_{00}$ $+C_{sp50}XC_{10}$
	2		$C_{sp01}XC_{00}$ $+C_{sp11}XC_{10}$	$C_{sp11}XC_{00}$ $+C_{sp21}XC_{10}$	$C_{sp21}XC_{00}$ $+C_{sp31}XC_{10}$	$C_{sp31}XC_{00}$ $+C_{sp41}XC_{10}$	$C_{sp41}XC_{00}$ $+C_{sp51}XC_{10}$
	3		$C_{sp02}XC_{00}$ $+C_{sp12}XC_{10}$	$C_{sp12}XC_{00}$ $+C_{sp22}XC_{10}$	$C_{sp22}XC_{00}$ $+C_{sp32}XC_{10}$	$C_{sp32}XC_{00}$ $+C_{sp42}XC_{10}$	$C_{sp42}XC_{00}$ $+C_{sp52}XC_{10}$
	4		$C_{sp03}XC_{00}$ $+C_{sp13}XC_{10}$	$C_{sp13}XC_{00}$ $+C_{sp23}XC_{10}$	$C_{sp23}XC_{00}$ $+C_{sp33}XC_{10}$	$C_{sp33}XC_{00}$ $+C_{sp43}XC_{10}$	$C_{sp43}XC_{00}$ $+C_{sp53}XC_{10}$
	5 (VMAX-1)		$C_{sp04}XC_{00}$ $+C_{sp14}XC_{10}$	$C_{sp14}XC_{00}$ $+C_{sp24}XC_{10}$	$C_{sp24}XC_{00}$ $+C_{sp34}XC_{10}$	$C_{sp34}XC_{00}$ $+C_{sp44}XC_{10}$	$C_{sp44}XC_{00}$ $+C_{sp54}XC_{10}$

FIG. 15

		C <sub>d</sub> p					
		0	1	2	3	4	5 (HMAX-1)
j	0						
	1		C <sub>sp00</sub> XC <sub>00</sub> +C <sub>sp10</sub> XC <sub>10</sub> +C <sub>sp20</sub> XC <sub>20</sub>	C <sub>sp10</sub> XC <sub>00</sub> +C <sub>sp20</sub> XC <sub>10</sub> +C <sub>sp30</sub> XC <sub>20</sub>	C <sub>sp20</sub> XC <sub>00</sub> +C <sub>sp30</sub> XC <sub>10</sub> +C <sub>sp40</sub> XC <sub>20</sub>	C <sub>sp30</sub> XC <sub>00</sub> +C <sub>sp40</sub> XC <sub>10</sub> +C <sub>sp50</sub> XC <sub>20</sub>	C <sub>sp40</sub> XC <sub>00</sub> +C <sub>sp50</sub> XC <sub>10</sub>
	2		C <sub>sp01</sub> XC <sub>00</sub> +C <sub>sp11</sub> XC <sub>10</sub> +C <sub>sp21</sub> XC <sub>20</sub>	C <sub>sp11</sub> XC <sub>00</sub> +C <sub>sp21</sub> XC <sub>10</sub> +C <sub>sp31</sub> XC <sub>20</sub>	C <sub>sp21</sub> XC <sub>00</sub> +C <sub>sp31</sub> XC <sub>10</sub> +C <sub>sp41</sub> XC <sub>20</sub>	C <sub>sp31</sub> XC <sub>00</sub> +C <sub>sp41</sub> XC <sub>10</sub> +C <sub>sp51</sub> XC <sub>20</sub>	C <sub>sp41</sub> XC <sub>00</sub> +C <sub>sp51</sub> XC <sub>10</sub>
	3		C <sub>sp02</sub> XC <sub>00</sub> +C <sub>sp12</sub> XC <sub>10</sub> +C <sub>sp22</sub> XC <sub>20</sub>	C <sub>sp12</sub> XC <sub>00</sub> +C <sub>sp22</sub> XC <sub>10</sub> +C <sub>sp32</sub> XC <sub>20</sub>	C <sub>sp22</sub> XC <sub>00</sub> +C <sub>sp32</sub> XC <sub>10</sub> +C <sub>sp42</sub> XC <sub>20</sub>	C <sub>sp32</sub> XC <sub>00</sub> +C <sub>sp42</sub> XC <sub>10</sub> +C <sub>sp52</sub> XC <sub>20</sub>	C <sub>sp42</sub> XC <sub>00</sub> +C <sub>sp52</sub> XC <sub>10</sub>
	4		C <sub>sp03</sub> XC <sub>00</sub> +C <sub>sp13</sub> XC <sub>10</sub> +C <sub>sp23</sub> XC <sub>20</sub>	C <sub>sp13</sub> XC <sub>00</sub> +C <sub>sp23</sub> XC <sub>10</sub> +C <sub>sp33</sub> XC <sub>20</sub>	C <sub>sp23</sub> XC <sub>00</sub> +C <sub>sp33</sub> XC <sub>10</sub> +C <sub>sp43</sub> XC <sub>20</sub>	C <sub>sp33</sub> XC <sub>00</sub> +C <sub>sp43</sub> XC <sub>10</sub> +C <sub>sp53</sub> XC <sub>20</sub>	C <sub>sp43</sub> XC <sub>00</sub> +C <sub>sp53</sub> XC <sub>10</sub>
	5 (VMAX-1)		C <sub>sp04</sub> XC <sub>00</sub> +C <sub>sp14</sub> XC <sub>10</sub> +C <sub>sp24</sub> XC <sub>20</sub>	C <sub>sp14</sub> XC <sub>00</sub> +C <sub>sp24</sub> XC <sub>10</sub> +C <sub>sp34</sub> XC <sub>20</sub>	C <sub>sp24</sub> XC <sub>00</sub> +C <sub>sp34</sub> XC <sub>10</sub> +C <sub>sp44</sub> XC <sub>20</sub>	C <sub>sp34</sub> XC <sub>00</sub> +C <sub>sp44</sub> XC <sub>10</sub> +C <sub>sp54</sub> XC <sub>20</sub>	C <sub>sp44</sub> XC <sub>00</sub> +C <sub>sp54</sub> XC <sub>10</sub>

FIG. 16

		$C_{dp}$					
		0	1	2	3	4	5 (HMAX-1)
j	0						
	1		$C_{sp00}XC_{00}$ $+C_{sp10}XC_{10}$ $+C_{sp20}XC_{20}$ $+C_{sp01}XC_{01}$	$C_{sp10}XC_{00}$ $+C_{sp20}XC_{10}$ $+C_{sp30}XC_{20}$ $+C_{sp11}XC_{01}$	$C_{sp20}XC_{00}$ $+C_{sp30}XC_{10}$ $+C_{sp40}XC_{20}$ $+C_{sp21}XC_{01}$	$C_{sp30}XC_{00}$ $+C_{sp40}XC_{10}$ $+C_{sp50}XC_{20}$ $+C_{sp31}XC_{01}$	$C_{sp40}XC_{00}$ $+C_{sp50}XC_{10}$  $+C_{sp41}XC_{01}$
	2		$C_{sp01}XC_{00}$ $+C_{sp11}XC_{10}$ $+C_{sp21}XC_{20}$ $+C_{sp02}XC_{01}$	$C_{sp11}XC_{00}$ $+C_{sp21}XC_{10}$ $+C_{sp31}XC_{20}$ $+C_{sp12}XC_{01}$	$C_{sp21}XC_{00}$ $+C_{sp31}XC_{10}$ $+C_{sp41}XC_{20}$ $+C_{sp22}XC_{01}$	$C_{sp31}XC_{00}$ $+C_{sp41}XC_{10}$ $+C_{sp51}XC_{20}$ $+C_{sp32}XC_{01}$	$C_{sp41}XC_{00}$ $+C_{sp51}XC_{10}$  $+C_{sp42}XC_{01}$
	3		$C_{sp02}XC_{00}$ $+C_{sp12}XC_{10}$ $+C_{sp22}XC_{20}$ $+C_{sp03}XC_{01}$	$C_{sp12}XC_{00}$ $+C_{sp22}XC_{10}$ $+C_{sp32}XC_{20}$ $+C_{sp13}XC_{01}$	$C_{sp22}XC_{00}$ $+C_{sp32}XC_{10}$ $+C_{sp42}XC_{20}$ $+C_{sp23}XC_{01}$	$C_{sp32}XC_{00}$ $+C_{sp42}XC_{10}$ $+C_{sp52}XC_{20}$ $+C_{sp33}XC_{01}$	$C_{sp42}XC_{00}$ $+C_{sp52}XC_{10}$  $+C_{sp43}XC_{01}$
	4		$C_{sp03}XC_{00}$ $+C_{sp13}XC_{10}$ $+C_{sp23}XC_{20}$ $+C_{sp04}XC_{01}$	$C_{sp13}XC_{00}$ $+C_{sp23}XC_{10}$ $+C_{sp33}XC_{20}$ $+C_{sp14}XC_{01}$	$C_{sp23}XC_{00}$ $+C_{sp33}XC_{10}$ $+C_{sp43}XC_{20}$ $+C_{sp24}XC_{01}$	$C_{sp33}XC_{00}$ $+C_{sp43}XC_{10}$ $+C_{sp53}XC_{20}$ $+C_{sp34}XC_{01}$	$C_{sp43}XC_{00}$ $+C_{sp53}XC_{10}$  $+C_{sp44}XC_{01}$
	5 (VMAX-1)		$C_{sp04}XC_{00}$ $+C_{sp14}XC_{10}$ $+C_{sp24}XC_{20}$ $+C_{sp05}XC_{01}$	$C_{sp14}XC_{00}$ $+C_{sp24}XC_{10}$ $+C_{sp34}XC_{20}$ $+C_{sp15}XC_{01}$	$C_{sp24}XC_{00}$ $+C_{sp34}XC_{10}$ $+C_{sp44}XC_{20}$ $+C_{sp25}XC_{01}$	$C_{sp34}XC_{00}$ $+C_{sp44}XC_{10}$ $+C_{sp54}XC_{20}$ $+C_{sp35}XC_{01}$	$C_{sp44}XC_{00}$ $+C_{sp54}XC_{10}$  $+C_{sp45}XC_{01}$

FIG. 17

		$C_{dp}$					
		0	1	2	3	4	5 (HMAX-1)
j	0						
	1		$C_{sp00}XC_{00}$ $+C_{sp10}XC_{10}$ $+C_{sp20}XC_{20}$ $+C_{sp01}XC_{01}$ $\vdots$ $+C_{sp22}XC_{22}$	$C_{sp10}XC_{00}$ $+C_{sp20}XC_{10}$ $+C_{sp30}XC_{20}$ $+C_{sp11}XC_{01}$ $\vdots$ $+C_{sp32}XC_{22}$	$C_{sp20}XC_{00}$ $+C_{sp30}XC_{10}$ $+C_{sp40}XC_{20}$ $+C_{sp21}XC_{01}$ $\vdots$ $+C_{sp42}XC_{22}$	$C_{sp30}XC_{00}$ $+C_{sp40}XC_{10}$ $+C_{sp50}XC_{20}$ $+C_{sp31}XC_{01}$ $\vdots$ $+C_{sp52}XC_{22}$	$C_{sp40}XC_{00}$ $+C_{sp50}XC_{10}$ $+C_{sp41}XC_{01}$ $\vdots$
	2		$C_{sp01}XC_{00}$ $+C_{sp11}XC_{10}$ $+C_{sp21}XC_{20}$ $+C_{sp02}XC_{01}$ $\vdots$ $+C_{sp23}XC_{22}$	$C_{sp11}XC_{00}$ $+C_{sp21}XC_{10}$ $+C_{sp31}XC_{20}$ $+C_{sp12}XC_{01}$ $\vdots$ $+C_{sp33}XC_{22}$	$C_{sp21}XC_{00}$ $+C_{sp31}XC_{10}$ $+C_{sp41}XC_{20}$ $+C_{sp22}XC_{01}$ $\vdots$ $+C_{sp43}XC_{22}$	$C_{sp31}XC_{00}$ $+C_{sp41}XC_{10}$ $+C_{sp51}XC_{20}$ $+C_{sp32}XC_{01}$ $\vdots$ $+C_{sp53}XC_{22}$	$C_{sp41}XC_{00}$ $+C_{sp51}XC_{10}$ $+C_{sp42}XC_{01}$ $\vdots$
	3		$C_{sp02}XC_{00}$ $+C_{sp12}XC_{10}$ $+C_{sp22}XC_{20}$ $+C_{sp03}XC_{01}$ $\vdots$ $+C_{sp24}XC_{22}$	$C_{sp12}XC_{00}$ $+C_{sp22}XC_{10}$ $+C_{sp32}XC_{20}$ $+C_{sp13}XC_{01}$ $\vdots$ $+C_{sp34}XC_{22}$	$C_{sp22}XC_{00}$ $+C_{sp32}XC_{10}$ $+C_{sp42}XC_{20}$ $+C_{sp23}XC_{01}$ $\vdots$ $+C_{sp44}XC_{22}$	$C_{sp32}XC_{00}$ $+C_{sp42}XC_{10}$ $+C_{sp52}XC_{20}$ $+C_{sp33}XC_{01}$ $\vdots$ $+C_{sp54}XC_{22}$	$C_{sp42}XC_{00}$ $+C_{sp52}XC_{10}$ $+C_{sp43}XC_{01}$ $\vdots$
	4		$C_{sp03}XC_{00}$ $+C_{sp13}XC_{10}$ $+C_{sp23}XC_{20}$ $+C_{sp04}XC_{01}$ $\vdots$ $+C_{sp25}XC_{22}$	$C_{sp13}XC_{00}$ $+C_{sp23}XC_{10}$ $+C_{sp33}XC_{20}$ $+C_{sp14}XC_{01}$ $\vdots$ $+C_{sp35}XC_{22}$	$C_{sp23}XC_{00}$ $+C_{sp33}XC_{10}$ $+C_{sp43}XC_{20}$ $+C_{sp24}XC_{01}$ $\vdots$ $+C_{sp45}XC_{22}$	$C_{sp33}XC_{00}$ $+C_{sp43}XC_{10}$ $+C_{sp53}XC_{20}$ $+C_{sp34}XC_{01}$ $\vdots$ $+C_{sp55}XC_{22}$	$C_{sp43}XC_{00}$ $+C_{sp53}XC_{10}$ $+C_{sp44}XC_{01}$ $\vdots$
	5 (VMAX-1)		$C_{sp04}XC_{00}$ $+C_{sp14}XC_{10}$ $+C_{sp24}XC_{20}$ $+C_{sp05}XC_{01}$ $\vdots$	$C_{sp14}XC_{00}$ $+C_{sp24}XC_{10}$ $+C_{sp34}XC_{20}$ $+C_{sp15}XC_{01}$ $\vdots$	$C_{sp24}XC_{00}$ $+C_{sp34}XC_{10}$ $+C_{sp44}XC_{20}$ $+C_{sp25}XC_{01}$ $\vdots$	$C_{sp34}XC_{00}$ $+C_{sp44}XC_{10}$ $+C_{sp54}XC_{20}$ $+C_{sp35}XC_{01}$ $\vdots$	$C_{sp44}XC_{00}$ $+C_{sp54}XC_{10}$ $+C_{sp45}XC_{01}$ $\vdots$

FIG 18

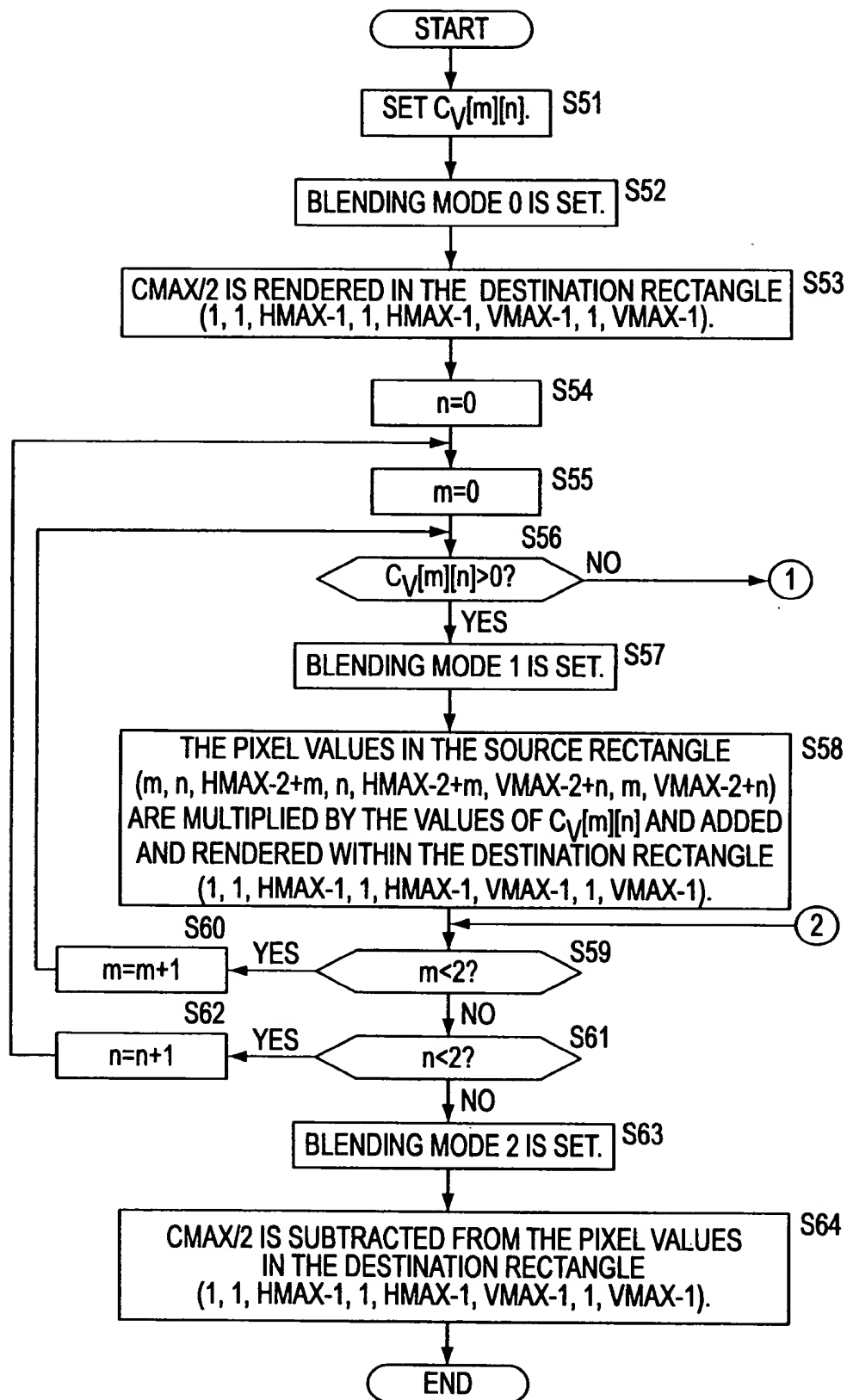


FIG. 19



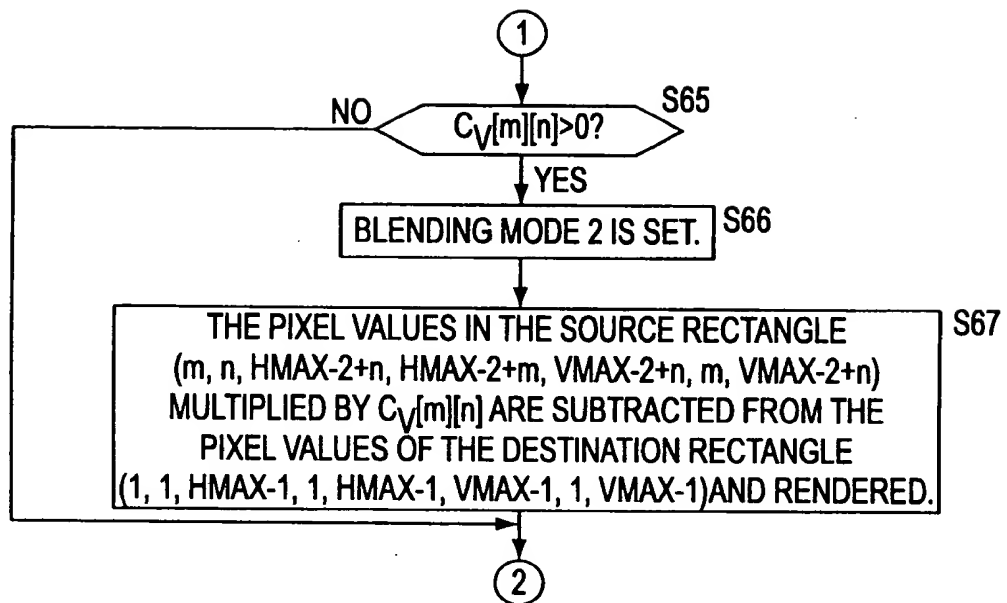


FIG. 20

		$C_{dp}$				
		0	1	2	3	4 5 (HMAX-1)
0						
1			$\frac{C_{MAX}}{2}$	$\frac{C_{MAX}}{2}$	$\frac{C_{MAX}}{2}$	$\frac{C_{MAX}}{2}$
2			$\frac{C_{MAX}}{2}$	$\frac{C_{MAX}}{2}$	$\frac{C_{MAX}}{2}$	$\frac{C_{MAX}}{2}$
3			$\frac{C_{MAX}}{2}$	$\frac{C_{MAX}}{2}$	$\frac{C_{MAX}}{2}$	$\frac{C_{MAX}}{2}$
4			$\frac{C_{MAX}}{2}$	$\frac{C_{MAX}}{2}$	$\frac{C_{MAX}}{2}$	$\frac{C_{MAX}}{2}$
5 (VMAX-1)			$\frac{C_{MAX}}{2}$	$\frac{C_{MAX}}{2}$	$\frac{C_{MAX}}{2}$	$\frac{C_{MAX}}{2}$

FIG. 21

```

graph TD
    START([START]) --> S71[SET  $C_V[m][n]$ . S71]
    S71 --> S72[BLENDING MODE 1 IS SET. S72]
    S72 --> S73[j=1 S73]
    S73 --> S74[i=1 S74]
    S74 --> S75[" $C_{dp}[i][j]=0$  S75"]
    S75 --> S76[n=0 S76]
    S76 --> S77[m=0 S77]
    S77 --> S78["THE SOURCE PIXELS  $C_{Sp}[i+m-1][j+n-1]$  ARE MULTIPLIED BY  $C_V[m][n]$  AND ADDED TO THE DESTINATION PIXELS  $C_{dp}[i][j]$  AND RENDERED. S78"]
    S78 --> S79{"m<2? S79"}
    S79 -- YES --> S80[m=m+1 S80]
    S79 -- NO --> S81{"n<2? S81"}
    S81 -- YES --> S82[n=n+1 S82]
    S81 -- NO --> S83{"i<HMAX-2? S83"}
    S83 -- YES --> S84[i=i+1 S84]
    S83 -- NO --> S85{"j<VMAX-2? S85"}
    S85 -- YES --> S86[j=j+1 S86]
    S85 -- NO --> END([END])
    S86 --> S73
    S84 --> S74
    S82 --> S75
    S80 --> S75
  
```

FIG. 22

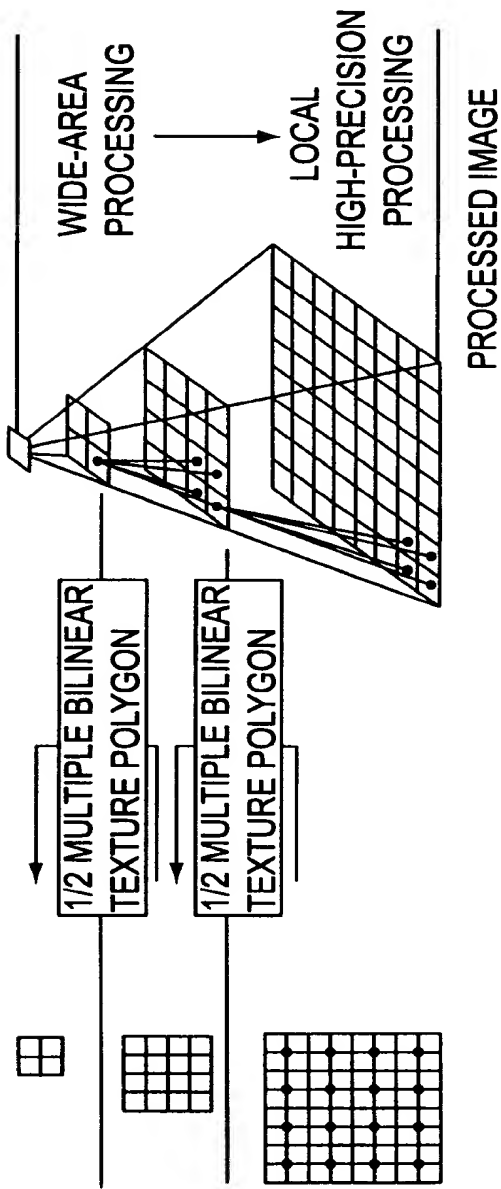


FIG. 23

09345743 052099

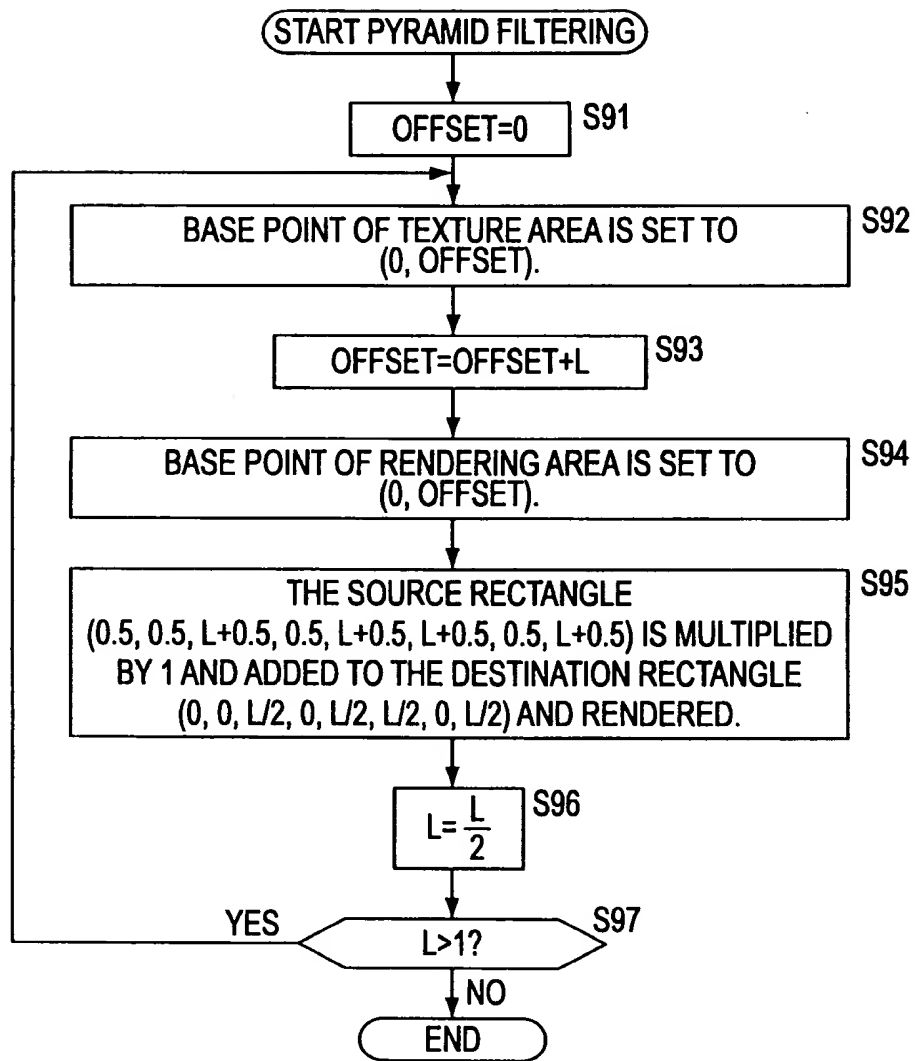


FIG. 24

$\mathbb{P}^n$  and  $\mathbb{P}^m$  are projective spaces of dimension  $n$  and  $m$  respectively.  $\mathbb{P}^n$  is a complex manifold of dimension  $n$ .  $\mathbb{P}^m$  is a complex manifold of dimension  $m$ .  $\mathbb{P}^n$  and  $\mathbb{P}^m$  are projective spaces of dimension  $n$  and  $m$  respectively.  $\mathbb{P}^n$  is a complex manifold of dimension  $n$ .  $\mathbb{P}^m$  is a complex manifold of dimension  $m$ .

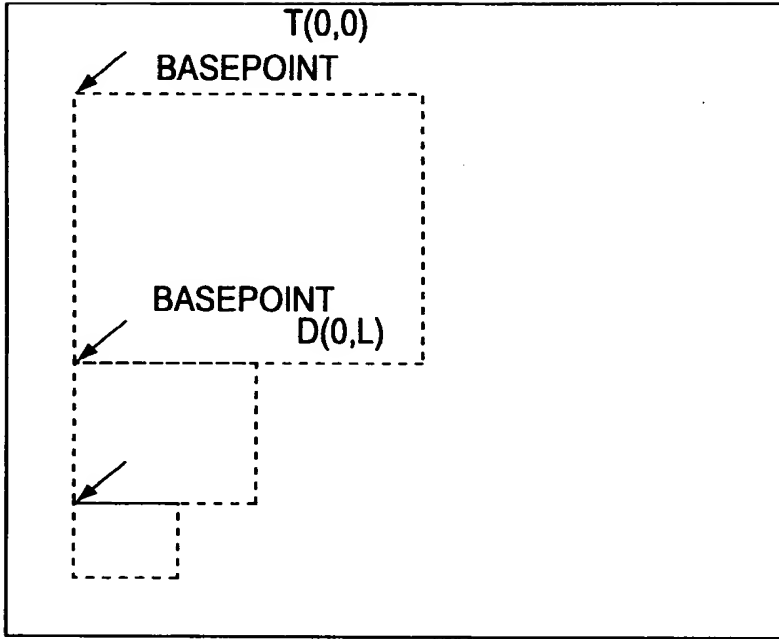


FIG. 25

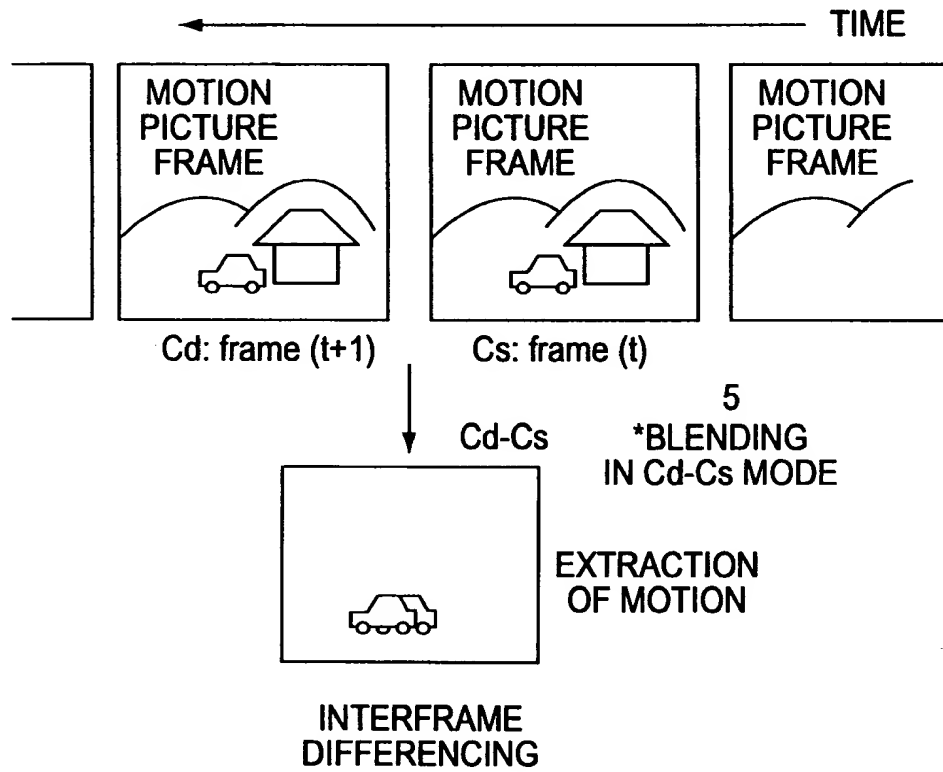


FIG. 26

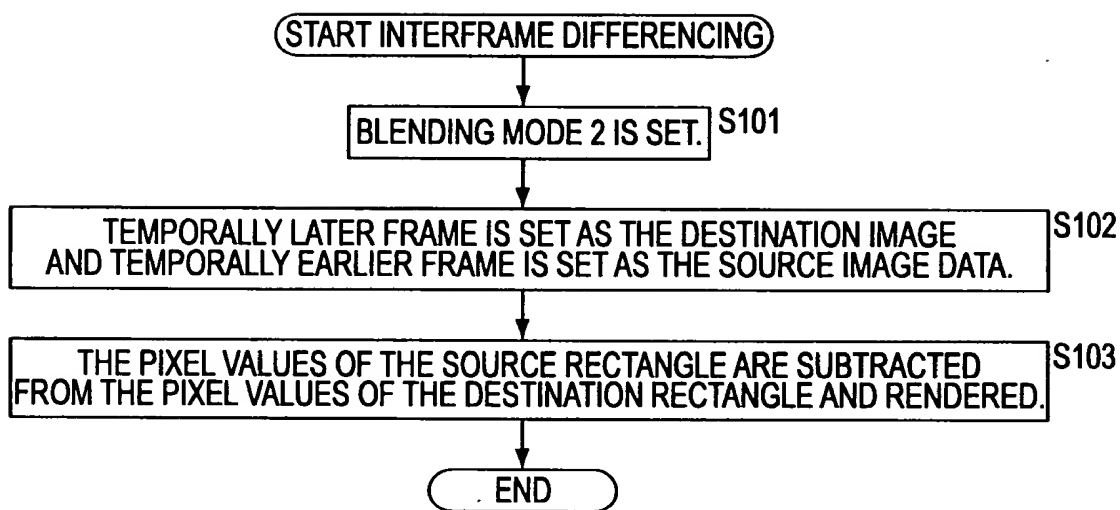


FIG. 27



**IMAGE A**

**IMAGE B**

**ABSOLUTE VALUE OF DIFFERENCES IS TAKEN:**

CLAMPED  
DIFFERENCE  
IMAGE A-B

CLAMPED  
DIFFERENCE  
IMAGE B-A

**ABSOLUTE-VALUE  
DIFFERENCE  
IMAGE A-B**

**SUM TOTAL BY  
PYRAMID FILTER  
(DYNAMIC RANGE  
COMPENSATION BY  
LUMINANCE CONTROL):**

**ABSOLUTE-VALUE  
DIFFERENCE  
IMAGE A-B**

**SUM TOTAL  
(AVERAGE VALUE)  
= INTERIMAGE  
DISTANCE**

FIG. 28

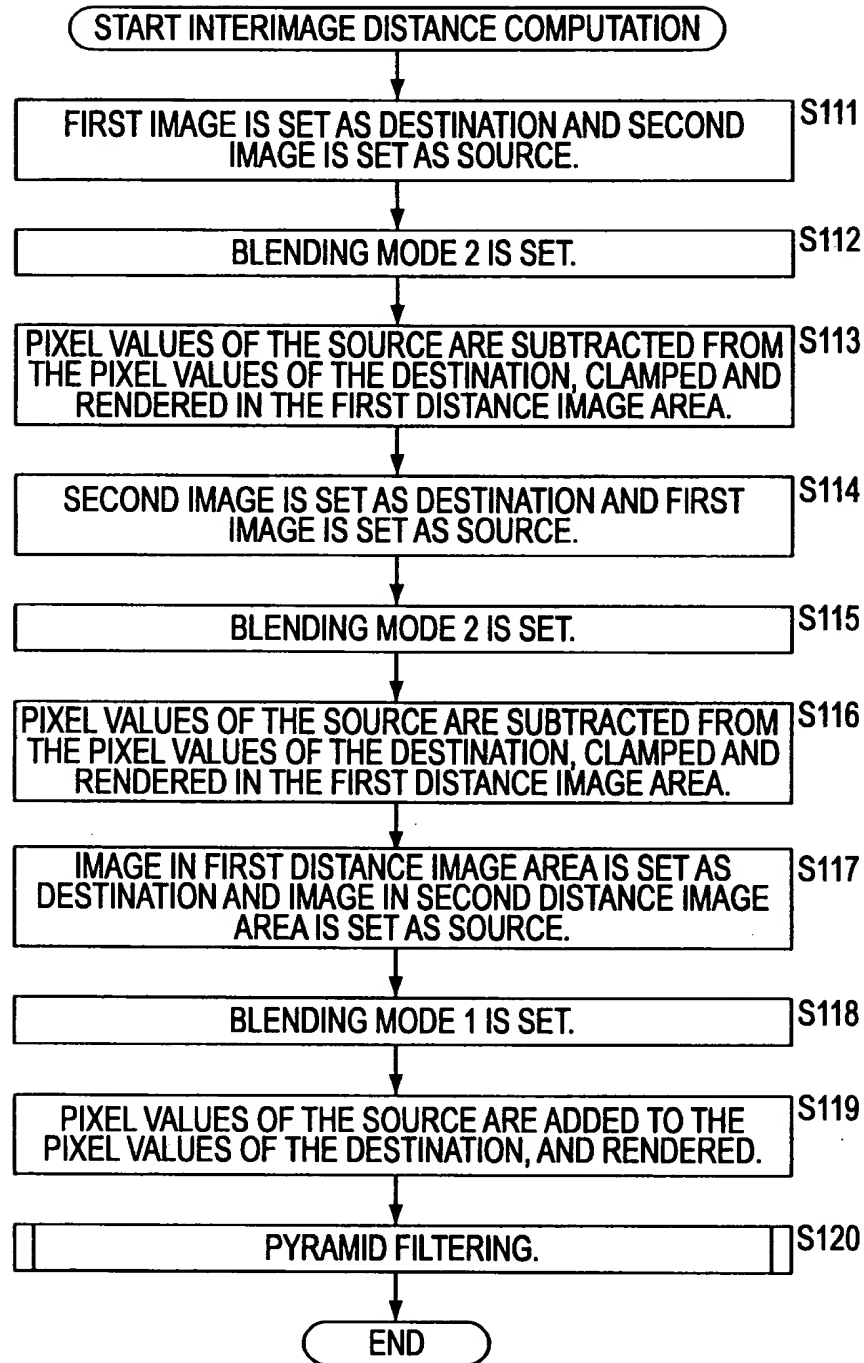


FIG. 29

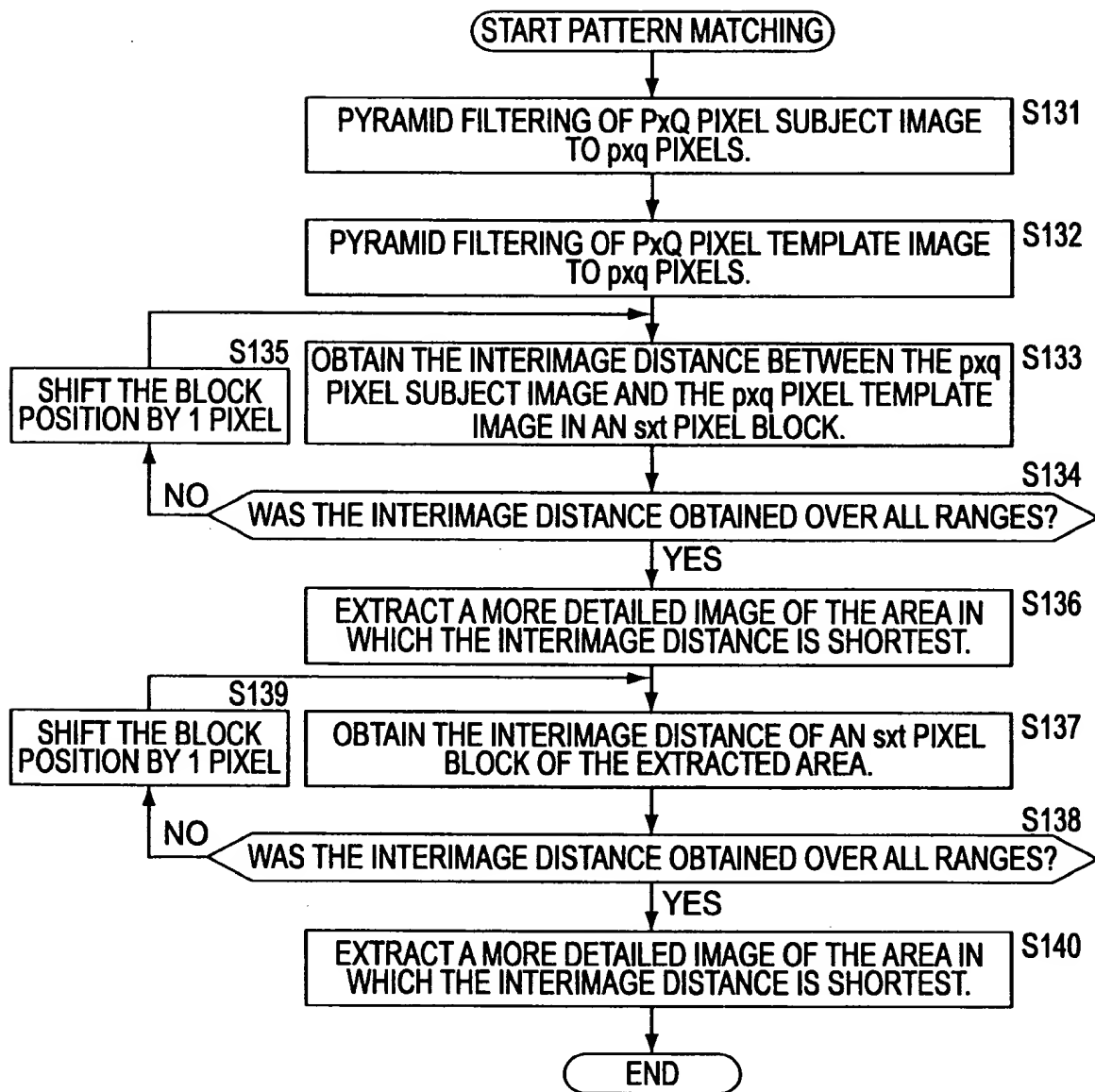


FIG. 30

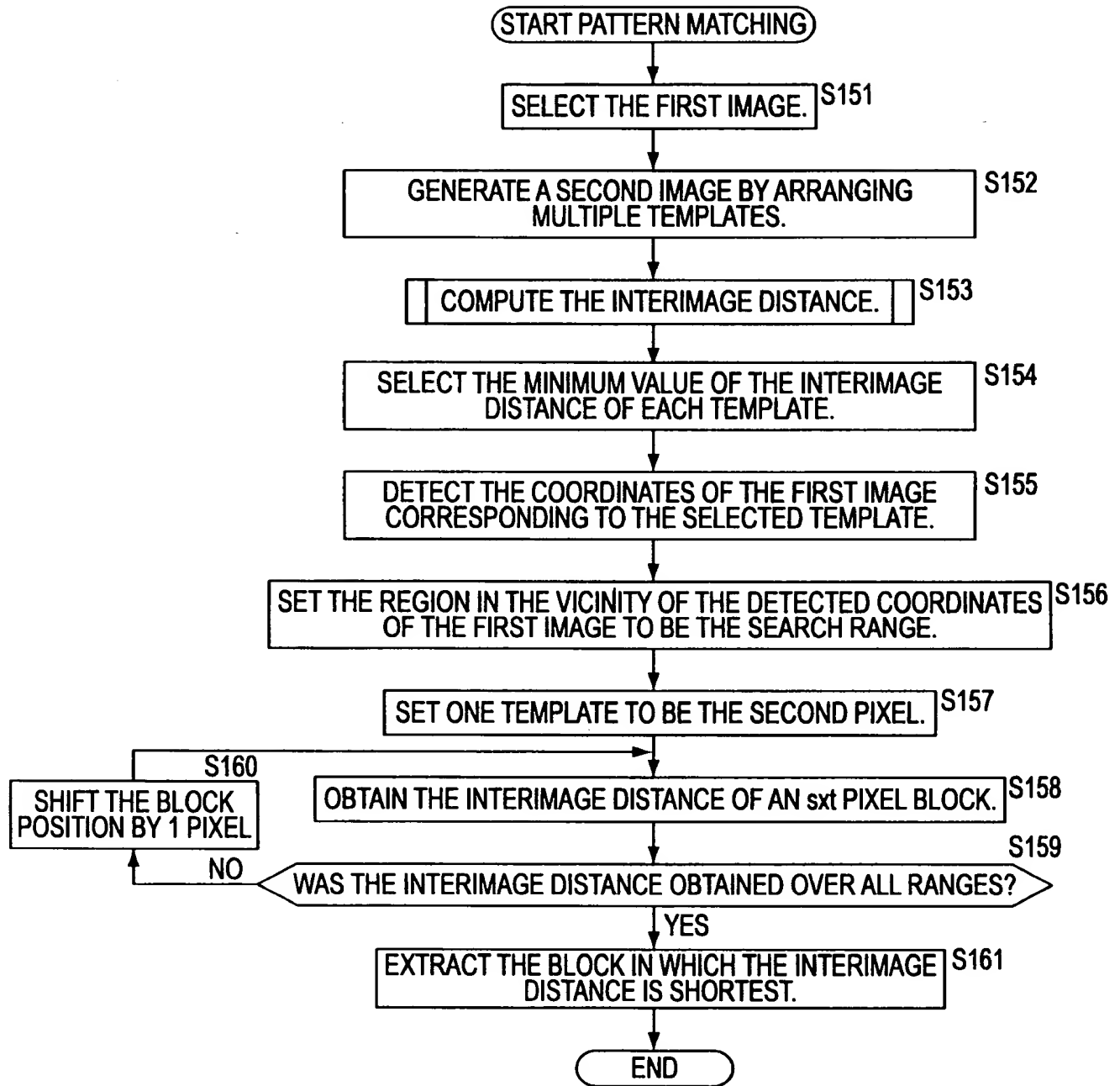


FIG. 31

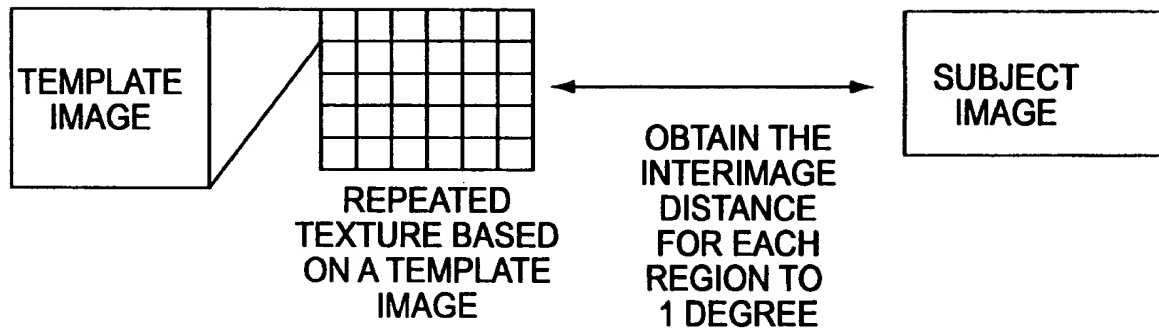


FIG. 32

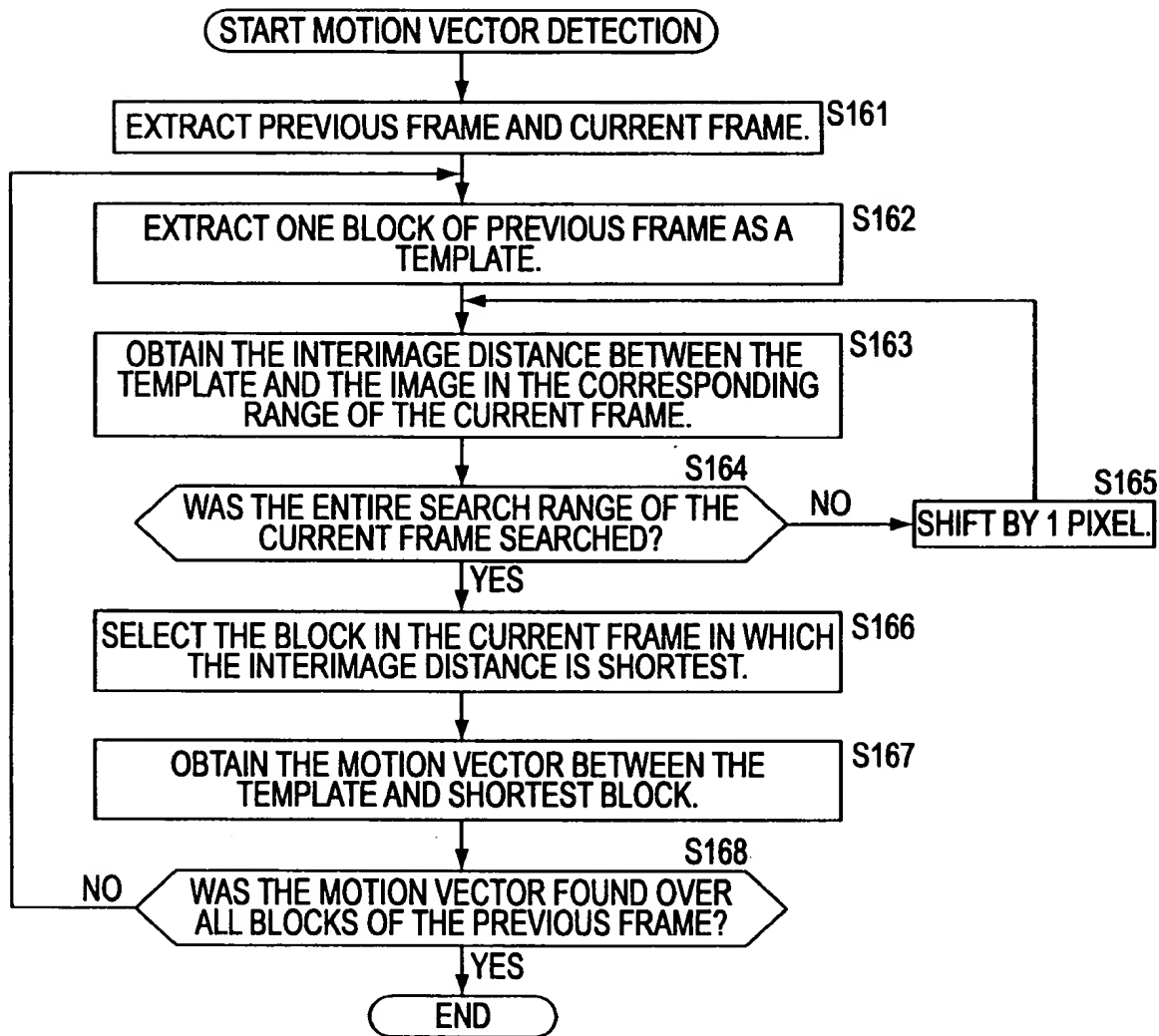


FIG. 33

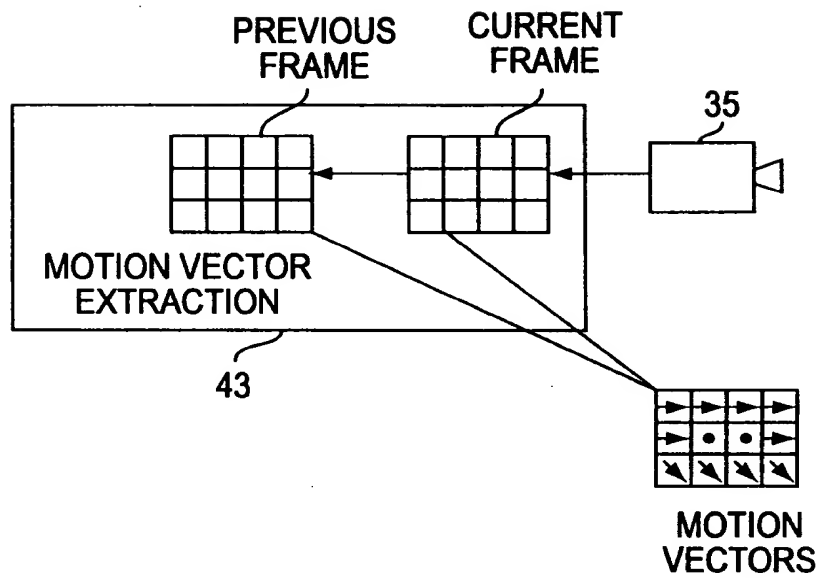


FIG. 34

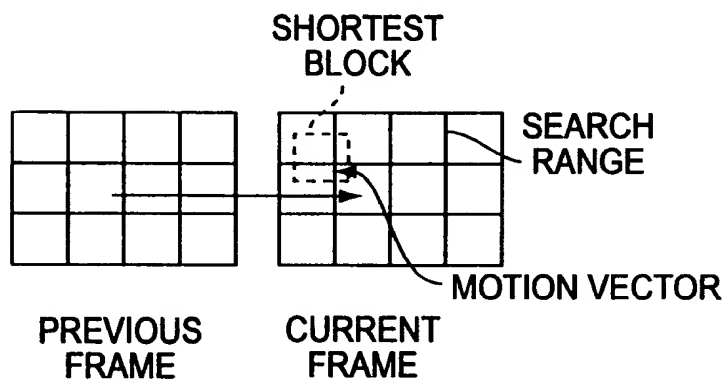


FIG. 35

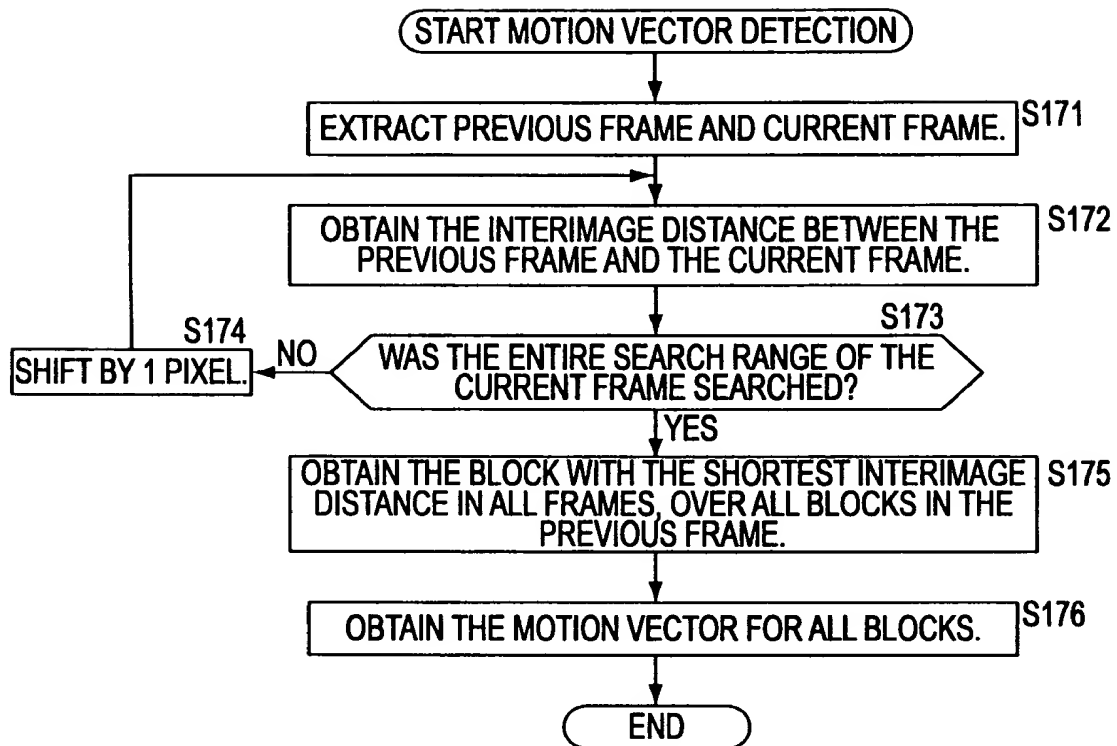


FIG. 36

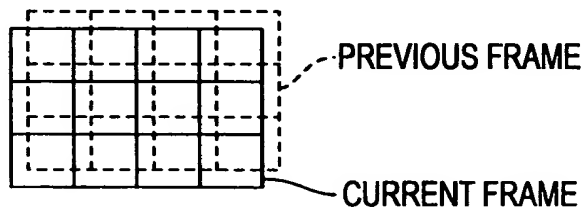


FIG. 37



FIG. 38

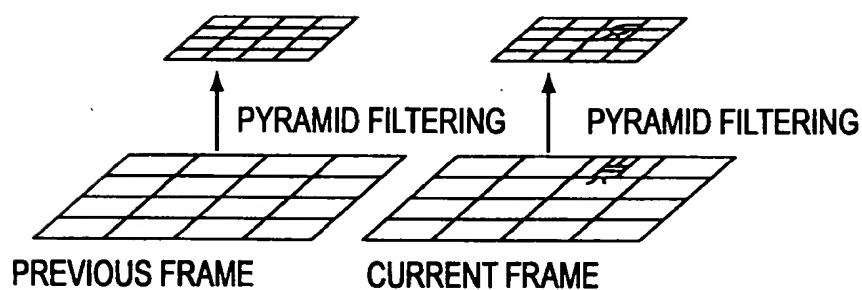


FIG. 39

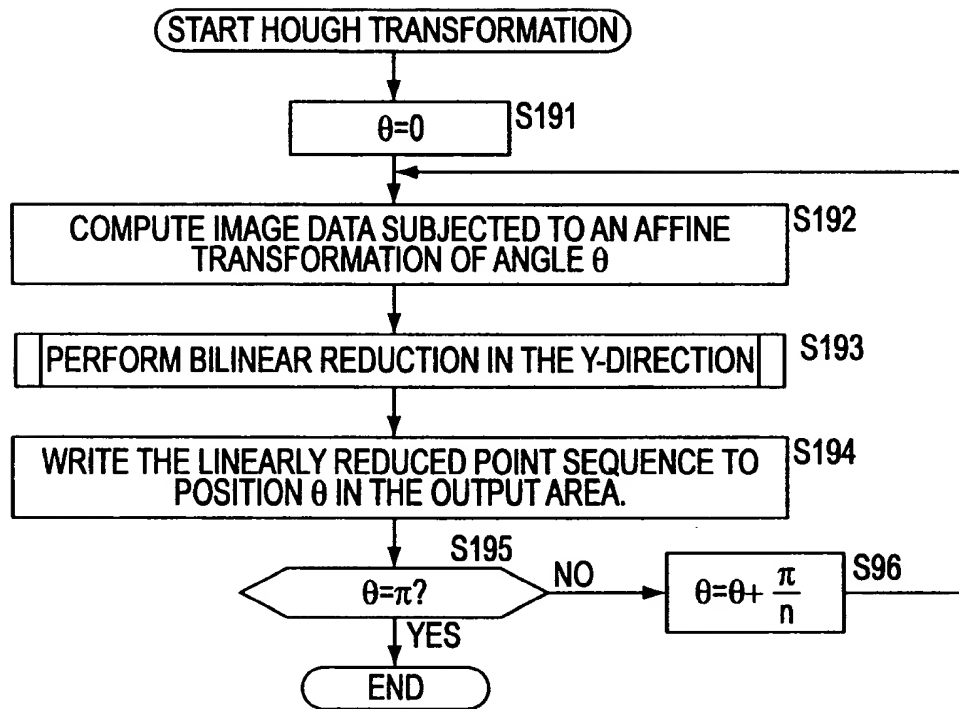


FIG. 40



FIG. 41

```

graph TD
    Start([START BILINEAR REDUCTION IN THE y-DIRECTION]) --> S201[L=L0, OFFSET=0 S201]
    S201 --> S202[BASE POINT OF TEXTURE AREA IS SET TO (0, OFFSET). S202]
    S202 --> S203[BASE POINT OF RENDERING AREA IS SET TO (0, OFFSET). S203]
    S203 --> S205[THE SOURCE RECTANGLE (0, 0.5, L0, 0.5, L0, L+0.5, 0, L+0.5) IS MULTIPLIED BY 1 AND ADDED TO THE DESTINATION RECTANGLE (0.0, L0, 0, L0, L/2, 0, L/2) AND RENDERED. S205]
    S205 --> S206[L = L/2 S206]
    S206 --> S207{L > 1? S207}
    S207 -- YES --> S202
    S207 -- NO --> End([END])
  
```

FIG. 42

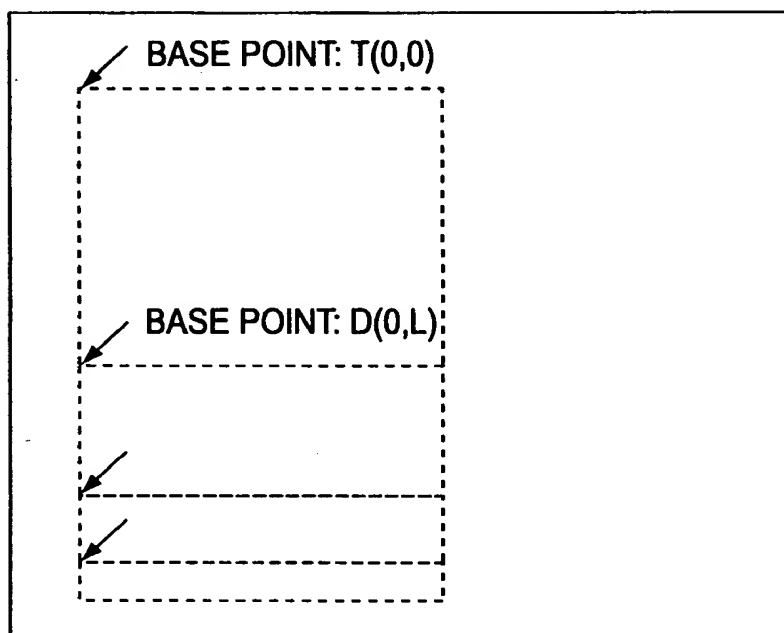


FIG. 43

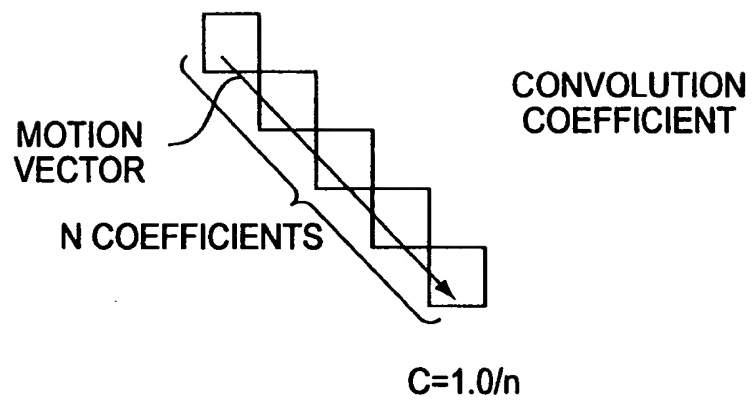
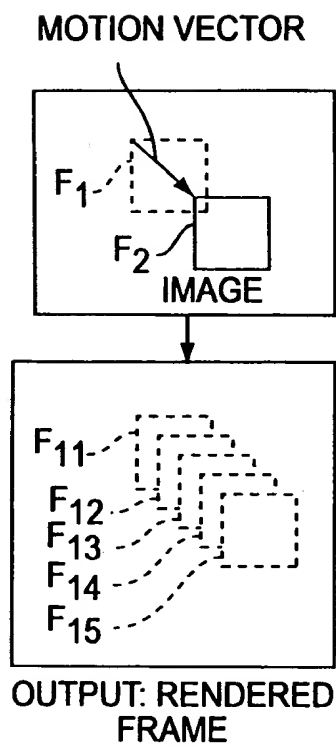


FIG. 44

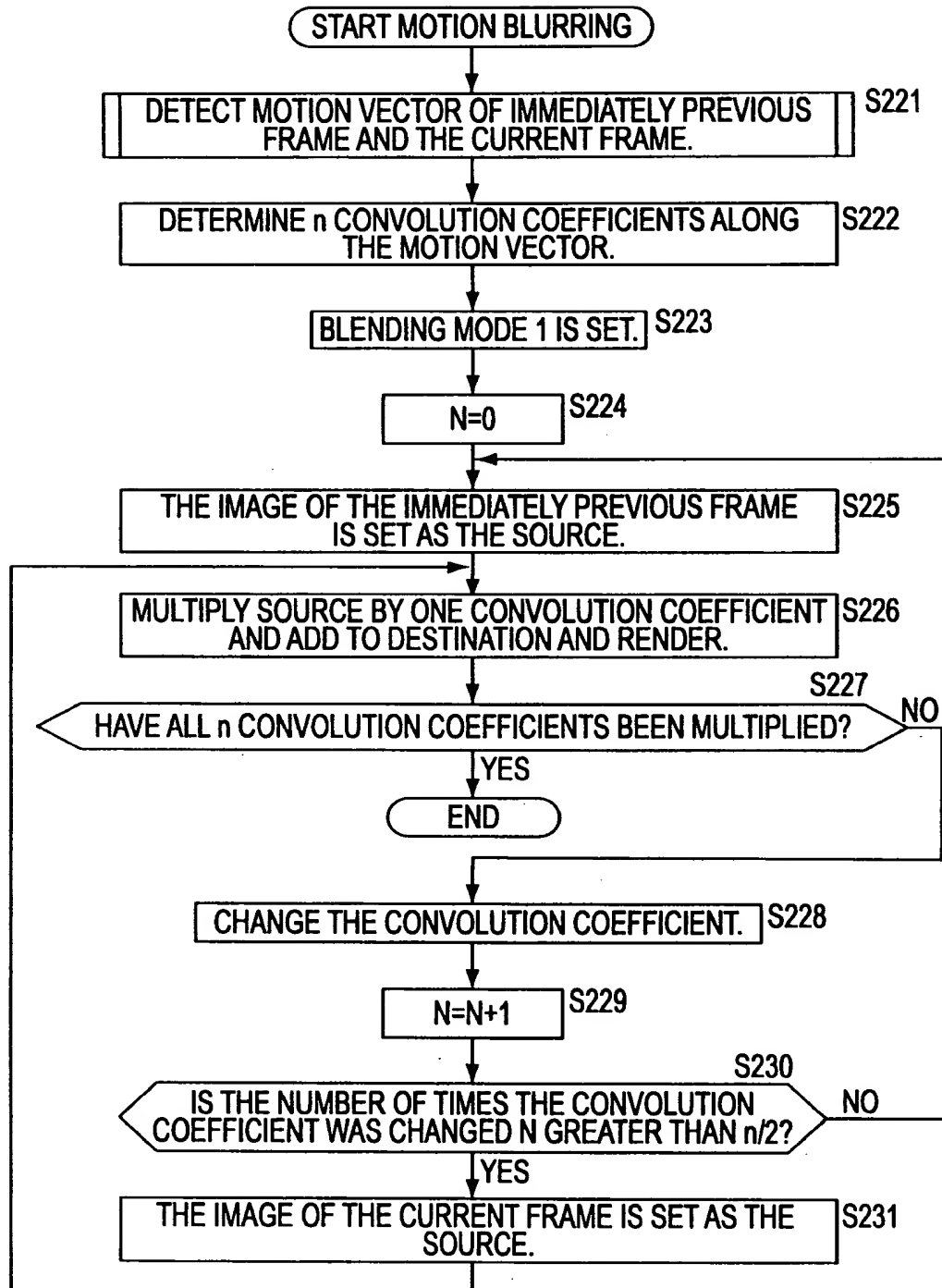


FIG. 45

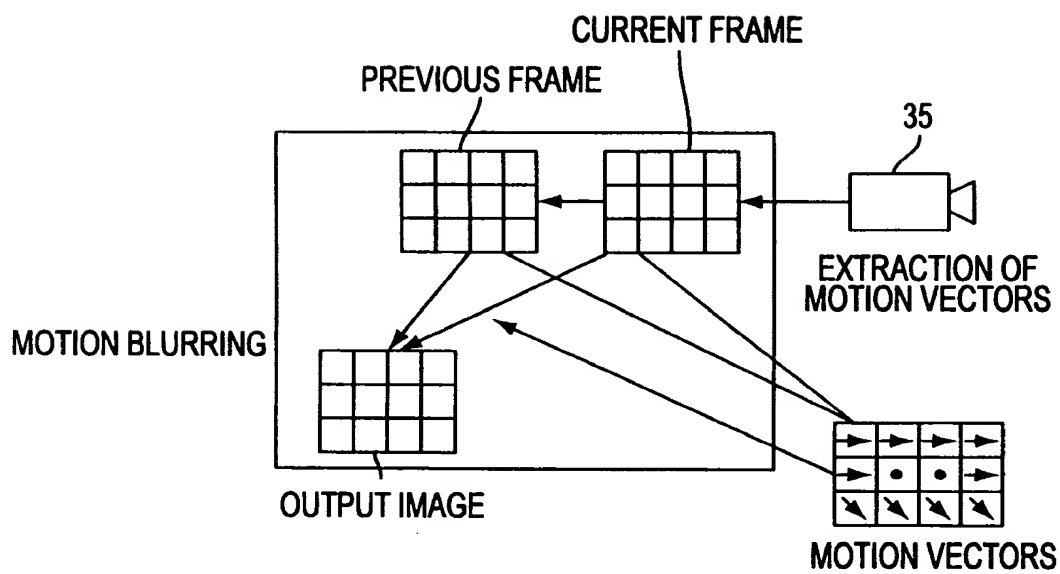


FIG. 46

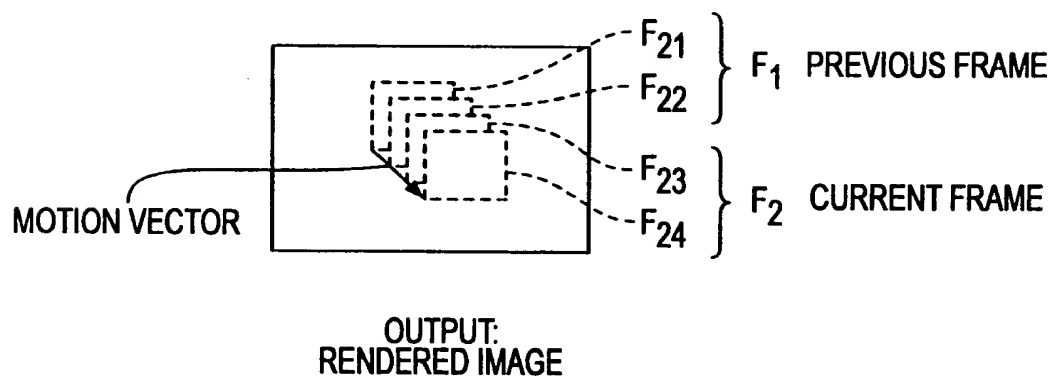


FIG. 47



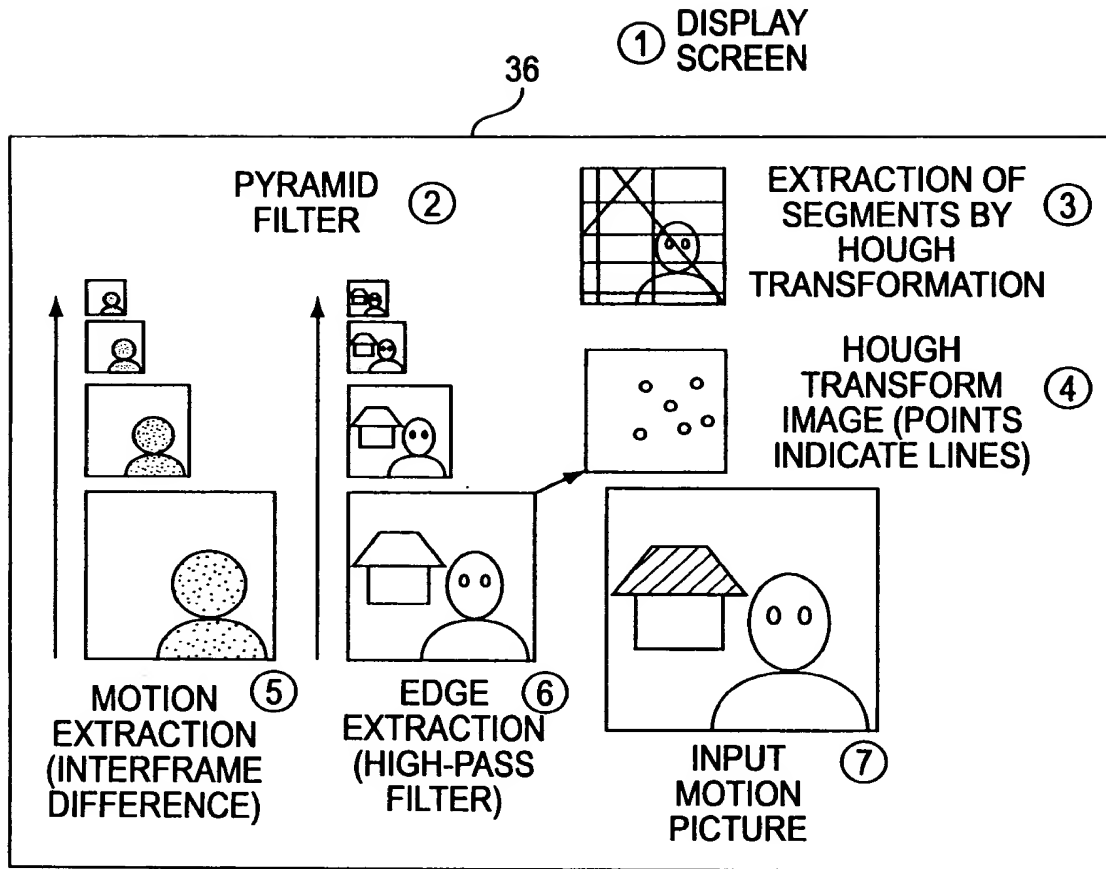


FIG. 48

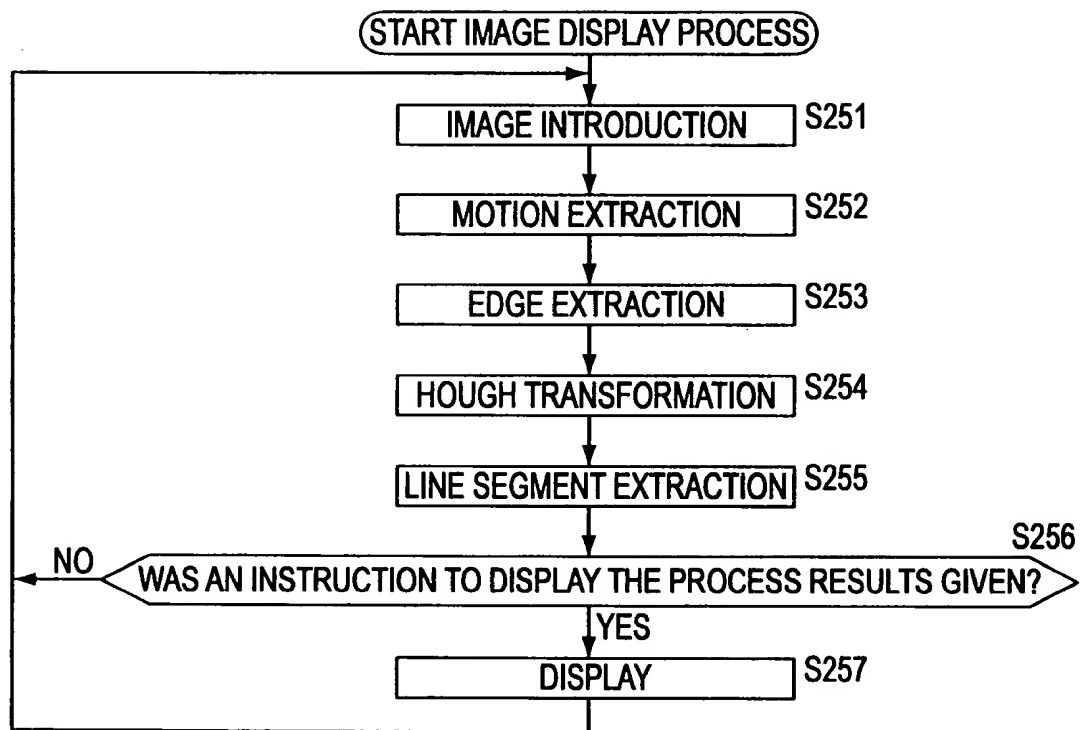


FIG. 49

(A)

0	-1	0
-1	4	-1
0	-1	0

(B)

-1	-1	-1
-1	8	-1
-1	-1	-1

(C)

$-1/4$	$-1/4$	$-1/4$
$-1/4$	2	$-1/4$
$-1/4$	$-1/4$	$-1/4$

(D)

$-1/8$	$-1/8$	$-1/8$
$-1/8$	1	$-1/8$
$-1/8$	$-1/8$	$-1/8$

FIG. 50